

Abstract of the Disclosure

A COMPOSITE BELT STRUCTURE AND A METHOD OF MANUFACTURING

The method of forming a composite belt structure 40 for a tire 21 is disclosed. The method discloses the steps of applying a multicord 46 reinforced strip 43 having a strip width SW onto a rotating crowned building drum, the strips 43 being wound in a zigzag configuration to form at least two zigzag layers 41 wherein the crowned drum has non-overlapping portions of the strips 43 placed in a central portion and extending in alternation to a pair of shoulder portions having portions of the strips 43 overlapping, the central portion having a maximum diameter D_o and the shoulder portions have a minimum diameter D_i , the adjacent strips 43 being placed apart from 0 to 2 mm in the central portion and the strips 43 are increasingly overlapping in each shoulder portion as the strips 43 extend from the central portion toward lateral ends of the belt structure 40 to form belt layers 39, 40, 42 of a composite belt structure 40 having the cords per inch in the shoulder portion as measured axially inwardly from the axially inner edge of the strip adjacent the lateral ends of the narrowest radially outer belt layer 42 radially inwardly greater than the cords per inch in the central portion as measured centered on the centerplane of the belt structure. The resultant method produces a pneumatic tire 21 having a carcass 31 and a belt reinforcing structure 40, the belt reinforcing structure 40 having a composite belt structure of cord reinforced layers 39,40,41 including at least two radially outer zigzag belt layers 42.